REMARKS

Claims 1-4 are pending in the present application. No new matter has been added.

Claims 1-4 have been rejected under 35 U.S.C. § 102(e) as assertedly being anticipated by U.S. Patent Application Publication No. 2003/0102562 A1 to Tomita (hereinafter "Tomita"). Applicants respectfully traverse these rejections.

Applicants incorporate herein the arguments as stated in Applicants' Response dated January 27, 2005. Applicants' believe that the Examiner has misunderstood Applicants' arguments and will attempt to clarify the arguments and further distinguish Tomita herein.

Generally, Tomita assertedly discloses regularly placing large and small dummy patterns based upon the vacant space available. The placement of large and small dummy patterns "may be shaped like not only a rectangle but also a strap, a hook, and lines and spaces _as long as the dummy patterns are regularly arranged_ to facilitate a control of process." (Tomita, paragraph 76.) Tomita places the regularly arranged large and small dummy patterns in any available vacant space. For example, FIG. 1 of Tomita illustrates that the large dummy patterns 11b are used wherever the vacant space is large enough to accommodate the large dummy patterns 11b. Small dummy patterns 11a fill in vacant spaces in which the large dummy patterns will not fit. Importantly, Tomita regularly arranges the large and small dummy patterns _without consideration of the density of the functional area_ as recited in Applicants' claim 1.

In contrast to Tomita, Applicants' invention as recited in claim 1 explicitly recites "determining a _density_ . . . of at least one functional area of a layer[] and adding dummy structures . . . _as a function of the determined density_." An example of this feature is illustrated in Figure 2 of Applicants' patent application, wherein the dummy structures 155-1, 155-2, and 160-1-5 are positioned based upon the density of one or more of the functional areas of the substrate. Notably, the dummy structures are not regularly spaced in all vacant areas as disclosed in Tomita, but rather are positioned as a function of the density of the functional areas.

Tomita must disclose each and every element as set forth in Applicants' claim 1 for Tomita to anticipate Applicants' claim 1. (See MPEP § 2131, 8th Ed., Rev. 2, May 2004.) In this case, the question is whether or not Tomita discloses the steps of "_determining a density_ and

location *of at least one functional area* of a layer" and *"adding dummy structures* to said layer *as a function of the determined density* and determined location." As discussed above, Tomita fails to disclose either of these steps, and in fact, Tomita simply discloses regularly arranging dummy patterns in vacant spaces *without* consideration of the density of the functional areas. Accordingly, Applicants respectfully request reconsideration of Applicants' claim 1.

Regarding the Office Action's response to Applicants' arguments contained on pages 3-4 of the Office Action, the Examiner stated:

> Examiner respectfully disagrees with applicant's arguments. Examiner notes that 1) the claims are 'comprising' claims, 2) the claims contain no temporal limitations, 3) there is no specified way in the claim for the practitioner to perform the limitation of, "as a function of the determined density and determined location", and 4) examiner has a fiduciary duty to interpret claims as broadly as reasonably possible (see below). For 1) a comprising claim may have extra limitations added as long as they do not interfere with the enumerated ones. For 2) Tomita does determine the density and location of the function area 9 in fig. 1, as stated above, and may add the location of the dummy layers after the location and the density of the functional areas. For 3) the adding of large and "small dummy patterns 11a are regularly arranged so as to be inserted in the region of the gap around the actual pattern 9 where the large dummy patterns 11b can not be arranged" is in fact a function of the determined density and determined location.
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> For 4) Examiner must give claims their broadest reasonable interpretation, MPEP §2111, "During patent examination, the pending claims must be 'given the broadest reasonable interpretation consistent with the specification.' Applicant always has the opportunity to amend the claims during prosecution and broad interpretation by the examiner reduces the possibility that the claim, once issued, will be interpreted more broadly than is justified, In re Pratter, 415 F.2d 1393, 1404-05, 162 USPQ 541, 550-551 (CCPA 1969), In re Morris, 127 F.3d 1048, 1054-55, 44 USPQ2d 1023, 1027-28 (Fed. Cir. 1997)." Also see In re Zletz, 13 USPQ2d. 1320 (Fed. Cir. 1989).

Regarding item (1), Applicants fail to understand the relevance of Examiner's observation that "a comprising claim may have extra limitations added as long as they to not interfere with the enumerated ones." Is the Examiner saying that because Applicants' claims do not preclude regularly spacing a dummy structure wherever there is a vacant space as assertedly disclosed in Tomita that Tomita discloses Applicants' claims? Clearly, this is not the case. "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." (MPEP § 2131, 8th Ed., Rev. 2,

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May 2004.) Thus, the question is not whether the claim may contain additional steps, but rather whether or not the prior art reference (Tomita) discloses each and every element as set forth in Applicants' claim. As discussed above, it is clear that Tomita discloses neither (1) "determining a _density_ and location of at least one functional area of a layer" nor (2) "adding dummy structures to said layer _as a function of the determined density and determined location._"

Regarding item (2), Applicants fail to understand why the fact that the claims "contain no temporal limitations" is an issue. _Random House Webster's College Dictionary_, 2000, defines the term "temporal" as "of or pertaining to time." Is the Examiner referring to the order of the steps? If so, what relevance is that to the rejections contained in the Office Action? Is the Examiner rejecting Applicants' claims because of some perceived lack of "temporal limitation"?

If the Examiner was referring to the ordering of the steps, Applicants note that, regarding claim 1, the step of "adding dummy structures to said layer as a function of _the determined density_ and determined location" refers to "the determined density," which is clearly determined in the first step. If the Examiner is referring to something else, Applicants respectfully request that the Examiner further explain the comment so as to give the Applicants an opportunity to address this issue.

Furthermore, the Examiner asserted that "Tomita does determine the density and location of the functional area 9 in fig. 1." The Examiner specifically identified Fig. 1 and the following section of Tomita as disclosing this feature.

> [0071]   In Embodiment 1, the large dummy patterns 11_b_ are regularly arranged from the region apart from the actual pattern 9 so as to bed thereon, and the small dummy patterns 11a are regularly arranged so as to be inserted in the region of the gap around the actual pattern 9 where the large dummy patterns 11b can not be arranged. Accordingly, the width of the trench-type isolating oxide film 13 does not exceed the predetermined width. Therefore, it is possible to suppress an increment of the abrading rate when the isolating oxide film 13a is abraded by the CMP method, whereby a sink of the film in the thickness direction by dishing can be prevented.

(Tomita, paragraph 71.)

Where in this section does Tomita "determine the _density_ and location of the functional area 9 in fig. 1" of Tomita? This section merely discusses placing the large and small dummy patterns in vacant gaps. The trench-type isolating oxide film 13 is referring to the trench filling

material. <u>Nowhere</u> in this section is *the density of a functional area determined* as recited in Applicants' claim 1.

Regarding item (3), the Examiner states that "the adding of large and 'small dummy patterns 11a are regularly arranged so as to be inserted in the region of the gap around the actual pattern 9 where the large dummy patterns 11b can not be arranged' is in fact a function of the determined density and determined location." This is a false statement. As stated above, Tomita discloses adding dummy patterns anywhere where there is a vacant space. *Tomita does not consider the density of the functional area.* <u>Again, Tomita places dummy patterns wherever there is vacant space, without consideration of the density of the functional space</u>. Compare, for example, Fig. 1 of Tomita in which dummy patterns are placed in all vacant spaces and Fig. 2 of Applicants' patent application in which the dummy patterns are positioned based on the density of the functional areas. The method disclosed in Tomita and Applicants' method as recited in claim 1 are two completely different methods.

Regarding item (4), Applicants acknowledge the Examiner's observation that, "[d]uring patent examination, the pending claims must be 'given their broadest reasonable interpretation consistent with the specification.'" (MPEP § 2111, 8th Ed., Rev. 2, May 2004.) (Citations omitted.) However, "[t]he broadest reasonable interpretation of the claims must also be consistent with the interpretation that those skilled in the art would reach." (MPEP § 2111, 8th Ed., Rev. 2, May 2004.) (Citations omitted.) In this case, the Office Action appears to be attempting to read a prior art reference that places dummy structures wherever there is vacant space on claims explicitly reciting "determining a *density* . . . of at least one *functional area* of a layer[] and *adding dummy structures to said layer as a function of the determined density*. . ." Applicants assert that this is not a "reasonable interpretation" in the broadest sense. How does placing dummy structures in any vacant space as disclosed in Tomita anticipate "determining a *density* . . . of at least one *functional area* of a layer[] and *adding dummy structures to said layer as a function of the determined density*. . ."? Tomita does not consider the density of the functional areas in adding dummy structures. If the Examiner maintains that the adding of dummy structures in any vacant space is based upon the determined density of functional areas, Applicants respectfully request that the Examiner clearly explain how this conclusion is being reached and identify the sections of Tomita being relied upon.

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In summary, Tomita assertedly discloses regularly spacing dummy structures in any vacant space *without any consideration whatsoever of the density of the functional area.* Accordingly, Tomita fails to disclose the steps of "determining a *density* and location of at least one functional area of a layer" and "adding dummy structures to said layer *as a function of the determined density* and determined location" as recited in Applicants' claim 1. Claims 2-3 depend from claim 1, and claim 4 includes a similar limitation as claim 1. Accordingly, Applicants respectfully request reconsideration of claims 1-4 and that the rejections thereof as being anticipated by Tomita be withdrawn.
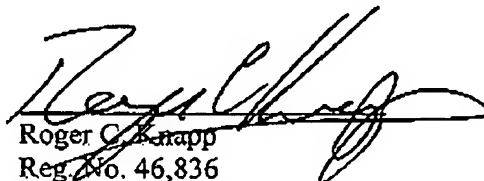
In the event that the Examiner disagrees, Applicants respectfully request that the Examiner describe in greater detail how Tomita anticipates Applicants' invention as claimed. In particular, Applicants respectfully request that the Examiner specifically identify how Tomita discloses "determining a *density* . . . of at least one functional area of a layer[] and adding dummy structures . . . as a function of the determined density" as recited in Applicants' claim 1. Where does Tomita disclose considering the density of the functional area in adding dummy structures? What element or feature is the Examiner considering the density of the functional area?

In view of the above, Applicants respectfully submit that this response complies with 37 C.F.R. § 1.116. Applicants further submit that the claims are in condition for allowance. No new matter has been added by this amendment. If the Examiner should have any questions, please contact Applicants' attorney at the number listed below. No fee is believed due in connection with this filing. However, in the event that there are any fees due, please charge the same, or credit any overpayment, to Deposit Account No. 50-1065.

Respectfully submitted,

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Date

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